

REMARKS

Claims 1-10 are pending in the application. Claims 1-10 stand rejected. No amendments are submitted with this Reply.

Reply to the Rejection of Claims 1-10 under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1-10 as being unpatentable over U.S. Patent No. 3,886,125 to Chromecek ("Chromecek"). Specifically, the Examiner states –

Chromecek teaches polymer complexes comprising a polymer which is formed from a monomer having hydrophilic functional groups such as amino groups and/or hydroxyl and/or carboxyl groups and containing aluminum, zinc or zirconium metal bound in complex form (see the abstract). Chromecek teaches a starting monomer material such as 2-dimethylaminoethyl methacrylate which may be used in forming the hydrophilic polymers (see col. 1, lines 57-68, col. 2, lines 1-6) including diethylaminoethyl acrylate or methacrylate, para-amino styrene, 2-vinyl pyridine and 4-vinyl pyridine (see col. 2, lines 34-55). Chromecek teaches that a portion of the monomer having the complex forming groups can be replaced by a monomer which do not contain any complex forming group such as styrene, vinyl acetate, alkyl acrylates, alkyl methacrylate and acrylonitrile (see col. 2, lines 56-64). Chromecek teaches that the complex polymer may be split so as to regenerate the original polymer and that the splitting of the polymer complex can be readily accomplished by treating the complex with hydrochloric acid, sulfuric acid, phosphoric acid or acetic acid or with an alkali (see col. 6, lines 38-57).

Chromecek does not teach the particular percent amounts of the protonated amine monomer and the hydrophobic monomer.

However, absence of evidence to the contrary, there are no unusual or unexpected results, since it appears that the prior art teachings and Applicant's claims are achieving the same end result. The burden is shifted upon the Applicant to prove that the claimed polymer is functionally different than those taught by the prior art and to establish patentable differences (*See In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977)*).

For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 1-10 as being unpatentable over Chromecek.

Chromecek discloses polymer complexes that include a polymer formed at least in part from a monomer having hydrophilic functional groups such as hydroxyl and/or carboxyl and/or amino groups and containing aluminum, zinc or zirconium metal bound in complex form

(Abstract). The polymer complexes are suitable for use as carriers, for example, as carriers for medicinal agents, fragrances, insecticides, pesticides, herbicides, etc. (Abstract).

The polymer complexes of Chromecek are formed by reacting the monomers or monomers with a metal salt (preferably aluminum; see, col. 3, lines 14-27) prior to polymerization (col. 1, lines 44-55; col. 3, lines 56-60). According to Chromecek, only one type of functional group (*i.e.*, hydroxy, carboxyl or amino group) is required to be present for formation of the monomer complex (col. 3, lines 9-13). These complex monomers are then polymerized by conventional means, including in the presence of additional non-complex forming monomers (col. 3, lines 60-64). A portion of the complex monomers can be replaced by non-complex monomers (col. 2, lines 55-64).

Once the complex polymer is formed, it can then be split using strong acids or bases (col. 6, lines 46-49 and 55-57) to regenerate the original polymer. Suitable acids include, for example, hydrochloric acid, sulfuric acid, phosphoric acid, nitric acid or acetic acid (col. 6, lines 50-55). The resulting materials thus formed are the original polymer and acid or base salts of the metal (*e.g.* aluminum chloride, zinc hydroxide, zirconium sulfide, etc.). Accordingly, the acid or base is used to remove the metal salts from the polymer, thereby leaving the polymer in an uncomplexed form.

From the above it is seen that Chromecek clearly does not teach protonating the amine part of a polymer as protonation cannot be achieved by a base. In contrast to Chromecek, the present invention is directed towards a polymer film formed from 2 to 60 mole percent of protonated amine monomer units.

Unlike Chromecek, the present invention also does not make use of a complexing metal salt. The presence of a complexing metal salt (*e.g.*, aluminum, zinc or zirconium) would precipitate out the amine polymer of the present invention, making it insoluble in all pH ranges. Such a result is clearly undesirable since the present invention seeks a polymer that is insoluble at high pH and soluble at low pH (see, *e.g.*, Abstract). Thus, the presence of a complexing metal salt as taught by Chromecek would be detrimental to the present our invention, causing it to fail.

Accordingly, Chromecek does not teach or suggest protonation of its amine functional monomers with a fixed acid. Instead, Chromecek appears to be directed towards chelating a functional polymer with a metal complex. Therefore, Chromecek is directed towards different

polymer chemistry than the polymer chemistry of the present application, resulting in a completely different polymer product (and, more importantly, a completely different and undesired solubility profile).

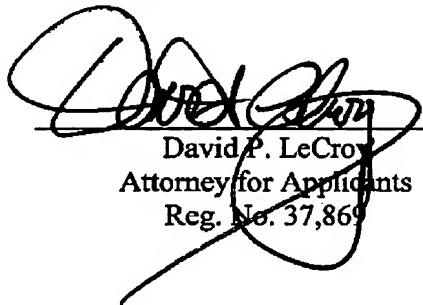
Accordingly, Chromecek does not provide any suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to form a protonated amine monomer. Second, Chromecek cannot be said to provide a reasonable expectation of success as Chromecek does not teach or suggest protonation of its amine functional monomers; instead, Chromecek is directed towards forming metal complex monomers, which is a different product than that of the presently claimed invention. Finally, Chromecek does not teach or suggest all the claim limitations in that it does not teach protonated amine monomer units. Therefore, the teaching or suggestion to make the claimed combination and the reasonable expectation of success is not found in the prior art, but only based on applicant's disclosure.

For at least these reasons, claims 1-10 are not rendered obvious by Chromecek. Withdrawal, therefore, of the rejection of claims 1-10 under 35 U.S.C. § 103(a) is respectfully requested. Allowance of the claims is believed to be in order, and such allowance is respectfully requested.

Respectfully submitted,

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